

OCT 15 2006

Applicant(s): Ghose, et al.	Group Art Unit: 2114
Application No.: 10/695,889	
Filed: 10/23/2003	Examiner: Gabriel L. Chu
Title: Failure Analysis Method and System for Storage Area Networks	
Attorney Docket No.: 00121-0000700000	

REMARKS

In the Office Action dated June 19, 2006, the Examiner objected to claims 3, 6, 9, 12, 16, 20, 23, 26, 27 and 34 due to various informalities. Applicants appreciate the Examiner providing his understanding of these claims in order to further prosecution. It is believed these informalities are no longer at issue given the claims as presently amended.

The Examiner also rejected claims 29-32 under 35 USC 112, second paragraph. The dependency of the claims as currently amended have been modified such that claim 29 depends from claim 27, claims 30 and 31 each depnd from claim 29 and claim 32 depends from claim 27. Accordingly, Applicants respectfully request withdrawal of this rejection.

Additionally, the Examiner also rejected claim 33 and claim 34 under 35 USC 101 as directed to non-statutory subject matter. Both claim 33 and claim 34 are each identified as apparatus and therefore fall under 35 USC 101 which specifies patentable subject matter as including "any new and useful process, machine, manufacture, or composition of matter." In fact, courts have found that patent claims stated in "means-plus function" terms correspond to machines and therefore proper statutory subject matter under 35 USC 101. *State Street Bank & Trust Co. v. Signature Financial Group, Inc.* 149 F.3d 1368, 47 USPQ2d 1596 (Fed. Cir. 1998). Applicants respectfully submit that use of means plus function language consistent with 35 USC 112 paragraph 6 does not remove claim 33 and claim 34 from this status but helps clarify these claim as proper statutory subject matter.

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It appears that the Examiner may have improperly construed claims 33 and 34 as computer program product claims rather than apparatus claims as intended. Computer program product claims typically include a limitation that tangibly embodies the method steps of the claim in a storage medium executable by a processor. For example, this would cover software on a floppy disk or CD-ROM. *In re Beauregard*, 53 F.3d 1583, 35 USPQ2d 1383 (Fed. Cir. 1995). However, claims 33 and 34 already describe statutory subject matter, namely an apparatus. While it is contemplated that aspects of the invention can also cover computer program product claims, it is unclear what adding such language to claims 33 and 34 would accomplish and why it is necessary. Accordingly, Applicants respectfully request the Examiner either further explain the reasoning and legal basis for making this rejection under 35 USC 101 or withdraw this rejection under 35 USC 101 and allow the claims as currently amended and filed.

Additionally, the Examiner rejected claims 1-4, 6-11, 18-21, 23-26 and 33 under 35 USC 103(a) as unpatentable over U.S. Patent 5,666,481 to Lewis (hereinafter "Lewis") in view of U.S. Printed Publication 20020019922 to Reuter et al. (hereinafter "Reuter"). The Examiner further noted that claims 5 and 22 were allowable if rewritten to include all of the limitations of the base claims 1 and 18 respectively and any intervening claims.

Applicants wish to thank the Examiner for carefully reviewing the claims and specification in light of the cited art. However, the cited art does not teach or suggest claims as amended and filed.

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Accordingly, Applicants respectfully submit that the claims as filed remain patentable over the cited art and would request reconsideration and allowance of the claims.

Lewis describes a method for managing communication networks using a trouble ticket system (Abstract, Col. 3, lines 36-44). According to Lewis, the term "communication network" describes a digital communication system that not only includes local area networks (LANs) but also includes wide-area networks or WANs. (Col. 1, lines 10-14.) Indeed, Lewis mentions both a LAN and a WAN as both are examples of communication networks that transmit digital information between computers. (Col. 1, lines 9-13). However, there is no mention of storage area networks (SAN) in Lewis that manage both the storage and transmission of data over a network.

The trouble ticket system in Lewis is a database that allows a user to enter descriptive information on a network condition (Col. 1, lines 35-40.) Users can only enter observations or symptoms of a network condition as they appear to the user. The actual errors in the network causing the network condition are not known to the user and not recorded in the trouble ticket system. (Col. 1, lines 61-66.) In fact, the trouble ticket system continues to be driven by the symptoms or observations reported even if a network technician later discovers and records the errors causing the network condition. Because the user cannot enter the actual errors and only the symptoms, there is a long delay between entering of the network condition observed and a resolution. (Col. 2, lines 9-15.)

Lewis assumes that the same network condition or symptom observed by multiple users over time will also have the same resolution. Accordingly, the trouble ticket system in Lewis suggests one

OCT 15 2006

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or more different possible solutions to a network condition based upon previous similar observations. (Col. 6, lines 55-60.) Unfortunately, it remains unknown whether performing one or more of the suggested resolutions would resolve the network condition as the underlying errors are not recorded or used in Lewis. Essentially, there is no direct connection between the errors that occur in Lewis and the resolution selected. Often, this requires a person using the trouble ticket system in Lewis to reject a proposed resolution in search of a new or better approach. (Col. 8, lines 40-45.)

Contrary to the Examiner's assertion, Lewis alone or in combination with the cited art does not teach each and every feature of the invention as claimed. To establish a prima facie obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. In re Royka, 490 F.2d 981, 180 USPQ 580 (CCPA 1974). "All words in a claim must be considered in judging the patentability of that claim against the prior art." In re Wilson, 424 F.2d 1382, 165 USPQ 494, 496 (CCPA 1970). If an independent claim is nonobvious under 35 U.S.C. 103, then any claim depending therefrom is nonobvious. In re Fine, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988).

It follows that Lewis does not describe or even suggest "identifying one or more predetermined error actions and one or more error events associated with the storage area network" as recited in claim 1 since Lewis does not record errors and use them to find solutions. Lewis attempts to match symptoms of network problems with potential resolutions without identifying the actual underlying errors causing the observed network conditions. This is why Lewis is unable to accurately predict the resolution network conditions reported by a user.

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In addition, Lewis cannot describe or even suggest "specifying an error pattern based upon a combination of one or more error events" as recited in claim 1 for similar reasons. Instead, Lewis receives a set of symptoms described by a user when a network condition occurs. The underlying error events or a combination of these error events are not specified in Lewis. Once again, Lewis attempts to match symptoms of network problems with potential resolutions without identifying the actual underlying errors causing the symptoms. To improve the probability of success, Lewis ranks various solutions based upon a likelihood of success and then executes them in sequence. (Col. 8, lines 36-40 of Lewis.)

Moreover, Lewis clearly applies to communication networks and not storage area networks. Contrary to the Examiner's assertion, communication networks and storage area networks are not equivalent technologies as communication networks only concern transmission of data and not the management of the data on storage devices. Lewis clearly states communication networks include local area networks (LAN) and wide area networks (WAN) but makes no mention of storage area networks (SAN).

Consequently, there is also no motivation or suggestion to combine the teachings of communication networks in Lewis with any reference to a SAN. (Col. 4, line 39 of Lewis.) Lewis contemplates communication networks but not storage area networks. Applicants respectfully submit there is no motivation or suggestion to combine Lewis with the teachings of SAN devices and Reuter.

OCT 15 2006

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Even if it were proper to combine Lewis with Reuter, the combination does not teach or suggest “associating an error action to perform in response to receiving the combination of one or more error events of the error pattern” as recited in claim 1. As previously described, Lewis does not deal with errors occurring in a communication network only the symptoms of these errors. Reuter does not concern either symptoms from errors or even errors that occur on a SAN. If an error occurs in a SAN, Reuter simply ignores the storage location and performs no error actions whatsoever. (Paragraph 27, lines 1-9 of Reuter.) Essentially, Reuter teaches away from handling errors that occur on a SAN. Applicants respectfully submit that the Examiner inappropriately equated handling of “faults” in Reuter with handling of errors even though Reuter clearly distinguishes between these two occurrences. For example, Reuter’s handling of “faults” relates to distributed agents dealing with mapping table entries for the virtual disk but is not relevant to handling errors. (Paragraph 34 of Reuter.)

For at least these reasons, independent claims 1, 18, 33 and 35 as currently filed are also in condition for allowance. Dependent claims 2-11 and 19-26 are allowable independently as well as by virtue of their direct or indirect dependency on claims 1 and 18 respectively.

The Examiner also rejected claims 12-16, 27-31 and 34 under 35 USC 103(a) as unpatentable over Lewis in view of Reuter and further in view of U.S. Patent to Feridun et al. (hereinafter “Feridun”.) The Examiner further noted that claim 17 was allowable if rewritten to include all of the limitations of the base claim 12 and any intervening claims.

OCT 15 2006

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Group Art Unit:  
2114Examiner:  
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For reasons previously described, Lewis does not teach or even suggest “generating one or more error events responsive to the occurrence of one or more conditions of components being monitored in the storage area network” and “receiving the one or more error events over a time interval for analysis in a failure analysis module” as recited in claim 12. For example, Lewis does not collect error events only selected symptoms users may experience. These symptoms are not errors and may or may not be the result of error events occurring on a communication network.

As the Examiner has noted, Lewis also does not teach or suggest “comparing a temporal arrangement of the error events received against a set of error patterns loaded in the failure analysis module” as recited in claim 12. Not only does Lewis not record error events or contemplate a SAN device, there is no teaching, suggestion or motivation to perform a temporal comparison of the symptoms Lewis does gather.

Applicants also respectfully submit there is no motivation or suggestion to combine Lewis with either Reuter or Feridun as suggested by the Examiner. Contrary to the Examiner’s assertion, Lewis applies to communication networks ranging from LANs to WANs but not to SANs. Because there is no motivation or suggestion, Lewis cannot be properly combined with Reuter.

Second, Feridun concerns a general purpose system for correlating system and network events in a distributed monitoring system. (Abstract, Col. 2, lines 1-6 of Feridun.) In contrast, the Examiner asserts Lewis “discloses the [sic] configuration and management is performed using a centralized failure analysis module” and not a distributed arrangement of agents as described in

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Group Art Unit:  
2114Examiner:  
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Feridun. (Page 6, paragraph 11 of the Office Action.) Accordingly, there is also no motivation or suggestion to combine Lewis with Feridun as well.

Of course, even if Reuter and Feridun were properly combined with Lewis, the result would not yield the limitations as recited in claim 12. First, Lewis combined with Reuter does not suggest “identifying the error pattern from the set of error patterns and error action corresponding to the error pattern to perform in response to the comparison in the failure analysis module” as recited in claim 12 since neither Reuter nor Lewis deal with errors. Lewis processes symptoms, not errors, on a communication network and Reuter expressly ignores errors on a SAN (Paragraph 27, lines 1-9 of Reuter.) Essentially, Reuter teaches away from handling errors that occur on a SAN.

Further, Feridun does not disclose or suggest “comparing a temporal arrangement of the error events received against a set of error patterns loaded in the failure analysis module” as recited in claim 12. Applicants respectfully submit that the Examiner has not shown where Feridun specifically describes “comparing a temporal arrangement of the error events received.” Under the circumstances, it is insufficient to describe Feridun as relating disparate events to a more generic problems (Page 9, lines 9-20 of the Office Action) to stand for “a temporal arrangement of error events received” as recited in claim 12.

For at least these reasons, independent claims 12, 27 and 34 remain patentable over the cited art. Dependent claims 13-17, 28-32 are not only independently patentable but also allowable by virtue of their dependency on independent claims 12 and 27 respectively.

OCT 15 2006

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The Examiner also rejected claims 35 under 35 USC 103(a) as unpatentable over Lewis in view of Reuter and further in view of "threshold" by IEEE 100 The Authoritative Dictionary of IEEE Standards Terms, December 2000, Standards Information Network IEEE Press, Seventh Edition, p. 1177 and "graphical user interface" by Microsoft computer dictionary, Third Edition, Microsoft Press, 1997, pg. 220 (herein "MSCD").

As previously noted, there is no motivation or suggestion to combine Lewis and Reuter. Second, even if the Lewis and Reuter combination were made they do not teach or suggest each and every element of claim 35. For example, Lewis and Reuter individually or combined do not teach or suggest "identifying one or more predetermined error actions and one or more error events associated with the storage area network" and "specifying an error pattern based upon a combination of one or more error events in the storage area network, presented through a graphical user interface with corresponding threshold values." as recited in claim 35 since neither Reuter and Lewis deal with errors. Lewis only processes symptoms not errors on a communication network and Reuter expressly ignores errors on a SAN (Paragraph 27, lines 1-9 of Reuter.) Essentially, Reuter teaches away from handling errors that occur on a SAN.

Applicants have made a diligent effort to place claims 1-35 in condition for allowance. Accordingly, Applicants respectfully request a withdrawal of the rejections and immediate allowance of claims 1-35. Of course, should there remain unresolved issues or the Examiner believes a discussion appropriate, it is respectfully requested that the Examiner telephone Leland

OCT 15 2006

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Wiesner, Applicants' Attorney at (650) 853-1113 so that such issues may be resolved as expeditiously as possible.

For these reasons, and in view of the above remarks, this application is now considered to be in condition for allowance and such action is earnestly solicited.

Respectfully Submitted,

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Date

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Page 20 of 20